

CLAIMS

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1. A ceramic heater comprising a ceramic substrate made of a nitride ceramic or a carbide ceramic and a heating body arranged on a surface thereof.

2. The ceramic heater according to claim 1, wherein the heating body is arranged so as to embed a part thereof in the ceramic substrate.

3. The ceramic heater according to claim 1, wherein the heating body is made of a sintered body of metal particles.

4. The ceramic heater according to claim 1, wherein the heating body is made of a mixture sintered body of metal particles and a metal oxide.

5. The ceramic heater according to ^{claim 1,} ~~claim 1, 2, 3 or 4~~, wherein as the metal particles is used one or more of noble metal, lead, tungsten, molybdenum and nickel.

6. The ceramic heater according to claim 1, ~~2, 3, 4 or 5~~ wherein the heating body is covered on its surface with a non-oxidizing metal layer.

7. The ceramic heater according to claim 1, ~~2, 3, 4, 5 or 6~~, wherein the heating body has a sectional shape that an aspect ratio at section (width of heating body/thickness of heating body) is 10-10000.

8. A ceramic heater comprising a ceramic substrat mad of th nitride c ramic or carbid ceramic and a flat h ating body arranged in an

inside thereof and having an aspect ratio at section (width of heating body/thickness of heating body) of 10-10000.

9. A ceramic heater comprising a ceramic substrate made of a nitride ceramic or a carbide ceramic and a flat heating body arranged in an inside thereof, wherein an arranging position of the heating body is a position eccentrically arranged from a center of the substrate in a thickness direction thereof and a face far apart from the heating body is a heating face.

10. The ceramic heater according to claim 8 ~~or 9~~, wherein the heating body is made of a sintered body of metal particles or electrically conductive ceramic.

11. The ceramic heater according to claim 8 ~~or 9~~, wherein the heating body is tungsten, molybdenum, tungsten carbide or molybdenum carbide.

12. The ceramic heater according to claim 9, wherein an eccentric degree of the heating body is a position from the heating face of the substrate to more than 50% but less than 100%.

13. The ceramic heater according to claim 9, wherein the heating body has an aspect ratio at section (width of heating body/thickness of heating body) of 10-10000.

14. A method of producing a ceramic heater which comprises at least following steps ①-③:
① step of sintering nitride ceramic powder or

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carbide ceramic powder to form a substrate made of nitride ceramic or carbide ceramic;

② step of printing an electrically conductive paste on the substrate; and

③ step of sintering the electrically conductive paste by heating to form a heating body on the surface of the ceramic substrate.

15. The method according to claim 14, wherein the electrically conductive paste used in the step ② is a mixed paste of metal particles and a metal oxide.

16. The method according to claim 14, wherein a metal coating layer is formed by plating a non-oxidizing metal onto the surface of the resulting heating body as a post step of the step ③.

17. A method of producing a ceramic heater which comprises at least following steps ①~④:

① step of shaping nitride ceramic powder or carbide ceramic powder to form a green sheet made of nitride ceramic or carbide ceramic;

② step of printing an electrically conductive paste of metal particles alone or a mixture with a metal oxide thereof on the surface of the green sheet made of the nitride ceramic or carbide ceramic;

③ step of laminating the green sheet printed with the electrically conductive paste on one or more of another green sheet obtained by the same treatment as in the step ①; and

④ step of sintering the green sheets and the

electrically conductive paste by heating and pressure.

18. The method according to claim 17, wherein when the green sheets obtained by the same treatment as in the step ① are laminated on the upper side and lower side of the green sheet printed with the electrically conductive paste in the step ②, the number ratio of the upper and lower green sheets is within a range of 1/1 to 1/99.

19. An electrically conductive paste for a heating body of a ceramic heater comprising metal particles and a metal oxide.

20. The electrically conductive paste according to claim 19, wherein as the metal particles is used one or more of noble metal, lead, tungsten, molybdenum and nickel.

21. The electrically conductive paste according to claim 19, wherein the metal oxide is one or more of lead oxide, zinc oxide, silicon oxide, boron oxide, aluminum oxide, yttrium oxide and titanium oxide.

22. The electrically conductive paste according to claim 19, wherein the mixture contains not less than 0.1 wt% but less than 10 wt% of the metal oxide to the metal particles.

23. The electrically conductive paste according to claim 19, wherein the metal particle has an average particle size of 0.1~100 μm .

24. The electrically conductive paste

according to claim 19, wher in the metal particl s
ar flake-shaped particle or a mixtur of spherical
particle and flake-shaped particle.

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